A Rare Instance of Recurrent Achromobacter Infection in an Immune-Competent Individual

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ABSTRACT

Introduction: Achromobacter xylosoxidans is a rare pathogen that causes opportunistic and rarely, nosocomial infections in immune-compromised patients, with high mortality. We encountered a rare presentation of recurrent A.xylosoxidans infection in an immune-competent individual.

Case Report: A 40-year-old lady presented with a right scapular swelling for 1 week. She had mild pain and low-grade fever. She had no comorbidities apart from a past laparoscopic cholecystectomy for cholelithiasis. Months later, she was diagnosed with multiple liver abscesses, with A.xylosoxidans as the causative organism gown in culture. She was asymptomatic for 2 years thereafter. The right scapular swelling was diffuse, non-tender and non-erythematous.

Conclusion: A.xylosoxidans rarely causes liver abscesses, although there have been few reports of similar cases in patients following cholecystectomy, similar to the case in discussion, indicating a possible association between cholecystectomy and A.xylosoxidans infection, even in immune-competent patients. Infection may be recurrent, and may require prolonged antibiotic therapy and close surveillance.

Keywords: Achromobacter, Liver Abscess, Immunecompetent, Cholecystectomy

INTRODUCTION

Achromobacter xylosoxidans is a rare pathogen that usually causes opportunistic and rarely, nosocomial infections in immune-compromised patients. It is a difficult to treat organism with high patient mortality rate.[1,2] It has a wide antibiotic resistance spectrum, and the rising incidence of nosocomial outbreaks is thus worrisome.

CASE REPORT

A 40-year-old lady presented with a right scapular swelling for a duration of one week. The swelling was mildly painful, and was gradually increasing in size. However, she had no limitation of activity or restriction of movement owing to the swelling. She had been having low grade fevers over the past 1 week.

She had no comorbidities. She had a past history of a laparoscopic cholecystectomy done for cholelithiasis. Months after the surgery, she had developed abdominal pain and fever and was diagnosed to have multiple liver abscesses. These had subsequently ruptured into the subdiaphragmatic area. She had been admitted in the hospital, and a pigtail drainage had been done. Pus culture had grown A.xylosoxidans. She had been treated with culture-sensitive antibiotics (Piperacillin-Tazobactam) for 14 days, after she had resolution of symptoms. She was asymptomatic thereafter for 2 years.

Physical examination showed a diffuse, non-tender and non-erythematous swelling over the right scapular region. There were no similar swellings elsewhere. Blood investigations showed mild elevation of imflammatory markers (CRP 22, ESR 25) and anaemia (Hb 8.5g/dL). An ultrasound of the region showed a well-defined collection measuring 6.2x1.7x 5.3cm (approx. 30 cc), at a distance of 1.6 cm from the skin with internal echoes and thick internal debris in the paraspinal region tracking along the psoas muscle. The pus was aspirated under ultrasound guidance and grew A.xylosoxidans. This was the second time she had a culture growing this rare organism, with an asymptomatic period of 2 years in between. She was thus evaluated for underlying immune compromising conditions. HIV ELISA, CD4 counts, serum immunoglobulins, complement levels (C3, C4) and ANA(IFA) were all negative. A PET-CT scan showed no occult malignancy or seeding of infection. On PET, the collection was seen as a hypodense loculated collection in the right posterior lumbar region, communicating with segment VI of liver (Figure 1).

Treatment was initiated with IV Ceftazidime and Trimethoprim-Sulphamethoxazole however, the pus collection continued to increase in size. She underwent pigtail drainage of the collection, and change over to Meropenem. She subsequently required prolonged IV antibiotic therapy through a PICC line for clinical resolution.

DISCUSSION

Achromobacter species are non-fermenting gram-negative bacilli that are found in soil and water.[1] Previously this organism was named Alcaligenes xylosoxidans. It was first described in 1971 by Yabuuchi and Ohyama, who discovered it in patients with chronic, purulent otitis media.[1] While Achromobacter species have been isolated occasionally from the human gastrointestinal tract and ear canal, it is

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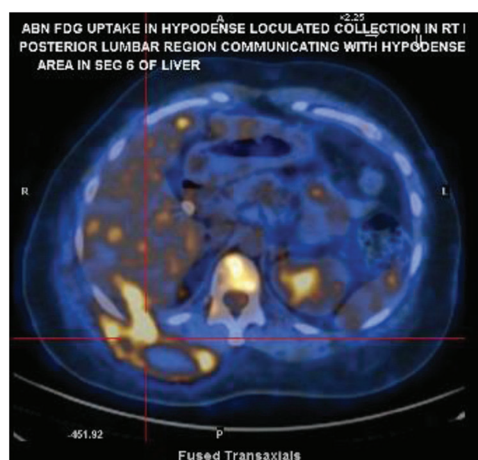

Figure-1: PET-CT image showing a hypodense loculated collection in right posterior lumbar region, which is communicating with segment VI of liver.

unclear whether the organisms are a usual component of human endogenous flora.[3]

The organism is known to infect immunosuppressed patients, including those with tumors, blood diseases, hypogammaglobulinemia, acquired immune deficiency syndrome (AIDS), or organ transplant recipients.[3] There have been several studies on association of Achromobacter infections and cystic fibrosis.[3] The patient in this case had no such tendencies, and was found to have no immune-compromising conditions after evaluation, yet developed recurrent infections with this pathogen.

The usual infections caused by A.xylosoxidans include primary bacteremia, catheter-related bloodstream infection, endocarditis, otitis, and pneumonia.[6] Liver abscesses due to A.xylosoxidans are extremely rare. However, there has been a reported case series of individuals who developed liver abscesses with this organism. All the patients in the case series had a common factor – they had undergone cholecystectomy for cholelithiasis, at varying intervals (months to years) and it was postulated that infection had spread via the biliary tract. In these patients, despite treatment with antibiotics and partial liver resection, the liver abscesses recurred repeatedly and A. Xylosoxidans was consistently isolated from the lesions. Two out of three patients expired.[7] The same pathogenesis for persistent infection could be considered in this patient, considering her past history of cholecystectomy with no history of any other surgical interventions or immune-compromising conditions.

CONCLUSION

xylosoxidans is known to cause infection in immunocompromised patients, while infection in immunocompetent hosts is rare. There may be an association between cholecystectomy and A.xylosoxidans infection, particularly as a liver abscess, even in immune-competent patients. Infection may be recurrent, and may require prolonged antibiotic therapy and close surveillance.

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